

*Suggested solution.*

Where does it work?

Your Turn

Decimals



## Dividing with decimals



1 Calculate these decimal and whole number divisions:

a  $3.6 \div 4$

$$\begin{array}{r} 0.9 \\ 4 \overline{) 3.6} \\ \underline{36} \\ 0 \end{array}$$

$\therefore 3.6 \div 4 = 0.9$

b  $17.5 \div 5$

$$\begin{array}{r} 3.5 \\ 5 \overline{) 17.5} \\ \underline{15} \\ 25 \\ \underline{25} \\ 0 \end{array}$$

$\therefore 17.5 \div 5 = 3.5$

c  $16.2 \div 9$

$$\begin{array}{r} 1.8 \\ 9 \overline{) 16.2} \\ \underline{9} \\ 72 \\ \underline{72} \\ 0 \end{array}$$

$\therefore 16.2 \div 9 = 1.8$

d  $0.63 \div 3$

$$\begin{array}{r} 0.21 \\ 3 \overline{) 0.63} \\ \underline{0.63} \\ 0 \end{array}$$

$\therefore 0.63 \div 3 = 0.21$

e  $0.489 \div 5$

$$\begin{array}{r} 0.0978 \\ 5 \overline{) 0.489} \\ \underline{45} \\ 39 \\ \underline{35} \\ 40 \end{array}$$

$\therefore 0.489 \div 5 = 0.0978$

f  $10.976 \div 7$

$$\begin{array}{r} 1.568 \\ 7 \overline{) 10.976} \\ \underline{7} \\ 39 \\ \underline{35} \\ 47 \\ \underline{42} \\ 56 \\ \underline{56} \\ 0 \end{array}$$

$\therefore 10.976 \div 7 = 1.568$

2 Calculate these decimal divisions, showing all your working:

a  $5.2 \div 0.4 = 52 \div 4$

$$\begin{array}{r} 13 \\ 4 \overline{) 52} \\ \underline{4} \\ 12 \\ \underline{12} \\ 0 \end{array}$$

$\therefore 5.2 \div 0.4 = 13$

b  $9.6 \div 0.6 = 96 \div 6$

$$\begin{array}{r} 16 \\ 6 \overline{) 96} \\ \underline{6} \\ 36 \\ \underline{36} \\ 0 \end{array}$$

$\therefore 9.6 \div 0.6 = 16$

c  $0.56 \div 0.8 = 5.6 \div 8$

$$\begin{array}{r} 0.7 \\ 8 \overline{) 5.6} \\ \underline{5.6} \\ 0 \end{array}$$

$\therefore 0.56 \div 0.8 = 0.7$

d  $1.58 \div 0.4 = 15.8 \div 4$

$$\begin{array}{r} 3.95 \\ 4 \overline{) 15.8} \\ \underline{12} \\ 38 \\ \underline{36} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

$\therefore 1.58 \div 0.4$

$= 3.95$

e  $0.8125 \div 0.05 = 81.25 \div 5$

$$\begin{array}{r} 16.25 \\ 5 \overline{) 81.25} \\ \underline{5} \\ 31 \\ \underline{30} \\ 12 \\ \underline{10} \\ 25 \\ \underline{25} \\ 0 \end{array}$$

$\therefore 0.8125 \div 0.05$

$= 16.25$

f  $5.3682 \div 0.006 = 5368.2 \div 6$

$$\begin{array}{r} 894.7 \\ 6 \overline{) 5368.2} \\ \underline{48} \\ 56 \\ \underline{54} \\ 28 \\ \underline{24} \\ 42 \\ \underline{42} \\ 0 \end{array}$$

$\therefore 5.3682 \div 0.006$

$= 894.7$

## Suggested Solution

### H. Conversions of measurements

Length:  $1 \text{ km} = 1000 \text{ m} = 100\,000 \text{ cm} = 1\,000\,000 \text{ mm}$   
 $1 \text{ m} = 100 \text{ cm} = 1\,000 \text{ mm}$   
 $1 \text{ cm} = 10 \text{ mm}$

Area:  $1 \text{ km}^2 = 1 \text{ km} \times 1 \text{ km} = 1000 \text{ m} \times 1000 \text{ m} = 1\,000\,000 \text{ m}^2$   
 $1 \text{ km}^2 = 1 \text{ km} \times 1 \text{ km} = 100\,000 \text{ cm} \times 100\,000 \text{ cm} = 10\,000\,000\,000 \text{ cm}^2$   
 $1 \text{ ha} = 100 \text{ m} \times 100 \text{ m} = 10\,000 \text{ m}^2$   
 $1 \text{ m}^2 = 100 \text{ cm} \times 100 \text{ cm} = 10\,000 \text{ cm}^2$   
 $1 \text{ m}^2 = 1000 \text{ mm} \times 1000 \text{ mm} = 1\,000\,000 \text{ mm}^2$

Convert the following:

- a.  $45 \text{ km}$  to  $\text{cm}$   $45 \times 100 \times 1000 = 4\,500\,000 \text{ cm}$   
b.  $78000 \text{ cm}$  to  $\text{m}$   $78000 \div 100 = 780 \text{ m}$   
c.  $6543 \text{ cm}$  to  $\text{km}$   $6543 \div 100 \div 1000 = 0.06543 \text{ km}$   
d.  $9.12 \text{ m}^2$  to  $\text{cm}^2$   $9.12 \times (100 \times 100) = 91200 \text{ cm}^2$   
e.  $246\,000 \text{ cm}^2$  to  $\text{m}^2$   $246000 \div (100 \times 100) = 24.6 \text{ m}^2$

### G. Scale diagram

1. Find the actual length if the scale length is  $6.7 \text{ cm}$  and the scale is  $1:300000$

$$\begin{aligned}\text{Actual length} &= \text{scale length} \times \text{scale factor} \\ &= 6.7 \times 300000 \\ &= 2\,010\,000 \text{ cm} \\ &= 20.1 \text{ km}\end{aligned}$$

2. Find the scale length if the actual length is  $90 \text{ m}$  and the scale is  $1:2500$

$$\begin{aligned}\text{Scale length} &= \text{actual length} \div \text{scale factor} \\ &= 90 \text{ m} \div 2500 \\ &= 9000 \text{ cm} \div 2500 = 3.6 \text{ cm}\end{aligned}$$

3. Given the scale of a map is  $1:2000$ . Find the actual distance of a path if it is measured  $5.9 \text{ cm}$  on the map in  $\text{km}$ .

$$\begin{aligned}\text{Actual distance of the path:} \\ &5.9 \times 2000 \\ &= 11800 \text{ cm} \\ &= 11800 \div (100 \times 1000) \\ &= 0.118 \text{ km}\end{aligned}$$